

REMARKS

This amendment is submitted in response to the Final Office Action mailed December 23, 2004. Applicant respectfully requests reconsideration of the subject application as amended herein.

Claims 1-7, 11-13, and 15-18 remain in the present application. Claims 8-10 and 14 have been cancelled without prejudice.

In the December 23, 2004 Office Action, claims 1-2, 5, 7-8, 11-12, 16, and 17-18 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,446,212 issued to Smit et al. (hereinafter "Smit"). Claim 8 has been cancelled without prejudice, rendering the rejection of claim 8 moot. Applicant has amended the remaining claims to clearly distinguish over Smit.

Amended claim 1 states:

A processor comprising:

- a first functional unit to execute a first stream of instructions;
- a second functional unit to execute a second stream of instructions;

- a first local voltage regulator to provide a first local supply voltage to the first functional unit, said first local voltage regulator to reduce the first local supply voltage based at least in part on a particular time period between instructions in the first stream of instructions;

- a second local voltage regulator to provide a second local supply voltage to the second functional unit, said second local voltage regulator to reduce the second local supply voltage based at least in part on a particular time period between instructions in the second stream of instructions; and

- a global power grid to power the first and second local voltage regulators with a global supply voltage.

In amended claim 1, a processor includes a number of functional units. Each functional unit is powered by a local voltage regulator to execute a string of instructions. When there is a gap in the string of instructions executed by a functional unit, the local voltage regulator can reduce the supply voltage for that functional unit. Support for amended claim 1 can be found at least in Paragraph 29 of the Application.

Smit, in contrast, is directed to extending the operating voltage range of a microcontroller, for instance from 2.5 - 6.5 volts to 2 - 18 volts (col. 1, lines 12-14 and 38-45). Smit describes a processor 10 with a core voltage regulator 14 and an I/O voltage regulator 24. Regulator 14 supplies power to a processing unit 12 (col. 2, lines 56-57), and regulator 24 supplies power to I/O ports 26 (col. 3, lines 23-27).

Applicant respectfully submits that Smit has nothing whatsoever to do with regulating supply voltages to individual functional units. More specifically, Smit does not suggest, disclose, or enable local voltage regulators for functional units that can reduce the local supply voltage based at least in part on gaps between instructions executed by the functional units, as claimed in amended claim 1.

Thus, for at least the reasons discussed above, Applicant respectfully submits that amended claim 1 is not anticipated by Smit.

Applicant submits that the reasoning presented above with respect to amended claim 1 similarly applies to claims 2, 5, 7, 11-12, 16, and 17-18. Thus,

for at least the reasons discussed above, Applicant respectfully submits that claims 2, 5, 7, 11-12, 16, and 17-18 are likewise not anticipated by Smit.

In the December 23, 2004 Office Action, claims 3, 6, and 13 were rejected under 35 U.S.C. § 103 as being unpatentable over Smit in view of U.S. Patent No. 5,932,987 issued to McLoughlin (hereinafter "McLoughlin"). Applicant respectfully submits that the reasoning presented above with respect to Smit similarly applies to claims 3, 6, and 13, as amended, and that McLoughlin does not cure these deficiencies of Smit. Therefore, for at least the reasons discussed above, Applicant respectfully submits that claims 3, 6, and 13 are patentable over Smit in view of McLoughlin.

In the December 23, 2004 Office Action, claims 4, 9-10, 14, 15, and 18 were rejected under 35 U.S.C. § 103 as being unpatentable over Smit in view of U.S. Patent No. 5,778,237 issued to Yamamoto et al. (hereinafter "Yamamoto"). Claims 9, 10, and 14 have been cancelled without prejudice, rendering the rejection of claim 9, 10, and 14 moot.

Applicant respectfully submits that the reasoning presented above with respect to Smit similarly applies to claims 4, 15, and 18, as amended, and that Yamamoto does not cure these deficiencies of Smit. Therefore, for at least the reasons discussed above, Applicant respectfully submits that claims 4, 15, and 18 are patentable over Smit in view of Yamamoto.

In conclusion, Applicant respectfully submits that claims 1-7, 11-13, and 15-18, as amended, are now in a condition for allowance, and Applicant respectfully requests allowance of such claims.

Please charge any shortages and credit any overages to our Deposit Account No. 50-0221.

Respectfully submitted,

INTEL CORPORATION

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Robert A. Diehl
Reg. No. 40,992

INTEL LEGAL
SC4-202
P.O. Box 5326
Santa Clara, CA 95056-5326
Phone: (503) 712-1880
FAX: (503) 264-1729